भारतीय मानक **IS 7777 : 2023**

Indian Standard

वस्त्रादि — घुमावदार किनारों सहित सूती फीते — विशिष्टि

(दूसरा पुनरीक्षण)

Textiles — Cotton Webbing Rolled Edges — Specification

(Second Revision)

ICS 59.060.10, 59.080.50

भारतीय मानक ब्यूरो
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July 2023 **Price Group 6**

Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee, TXD 39

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee had been approved by the Textile Division Council.

Cotton webbings are soft to the touch and perfect for many of purposes webbing is found across various sectors, standard webbing applications include seatbelts and harnesses, safety bands and tapes, belts, hammocks, backpacks.

This standard, first published in 1975, and subsequently revised in 1987.This standard has been revised again to incorporate the following major changes:

a) Title of the standard has been modified; and
b) Sampling and criteria for conformity have been modified.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TEXTILES — COTTON WEBBING ROLLED EDGES — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements of two varieties of rolled edges cotton webbing having width of 32 mm and 57 mm used in the manufacturing of waist belts and rifle slings. Webbing of 57 mm width shall be with slotted back.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed in Annex A.

3 MANUFACTURE

3.1 The webbing shall be made from cotton yarn of approximate count 60 tex × 5 (or $l0^s/5$) having a minimum breaking load of 34.3 N. The yarn shall be bleached or dyed as required and rendered moisture resistant by a suitable finish. Direct dyes shall not be used in case of dyed webbing.

NOTES

1 Breaking load testing shall be performed with gauge length of 200 mm and traverse speed of (300 ± 15) mm/s on a CRT apparatus.

2 Unless otherwise specified, the webbings are usually required to be supplied in olive green or khaki shade.

3.2 Webbing

The webbing shall be woven uniformly with firm, straight and well-formed selvedges. These shall be free from weaving and other manufacturing defects. These shall also be free from sizing or filling material and shall not contain any matter liable to cause subsequent tendering.

4 REQUIREMENTS

4.1 The webbings shall conform to the requirements as given in Tables 1 and Table 2.

5 PACKAGING

5.1 The webbings shall be delivered in clean and dry condition, after being made into rolls of 25 m each or as agreed between buyer and seller. The rolls shall be without joints as far as practicable. However, a maximum of three joints in a roll may be permitted subject to individual piece length being not less than 5 m.

6 MARKING

6.1 The webbing shall be suitably marked at both the ends with the following:

a) Variety No. of the webbing;
b) Manufacturer’s name, initials or trade-mark;
c) Length of roll;
d) Year of manufacture; and
e) Any other information/instruction provided by the manufacturer/required under law.

6.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

7 SAMPLING AND CRITERIA FOR CONFORMITY

7.1 Unless otherwise agreed to between the buyer and the seller, the number of rolls to be selected at random from a lot shall be as given in Table 3

Table 1 Physical Requirements of Cotton Webbings Rolled Edges/Slotted Back
(*Clause* 4.1)

Sl No.	Variety No.	Dimensions					Ends			Picks/cm	Mass g/m	Breaking Strength Full Width Strips, 20 cm Between Grips, N *Min* (*see* Notes 2 and 3)	Weave
		Width mm	Length m/roll	Slot			Full Width including Rolled Edges	Each Rolled Edge	Binding Ends				
				Depth mm	Width mm	Distance Between Two Adjoining Slots mm							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
i)	1	32 ± 1	25 or as agreed	—	—	—	174	22	—	11	72	2 940	Double Plain/ Double Oxford
ii)	2	57 ± 2	25 or as agreed	16	11	10	282 (including binding ends)	12	17	6 (*see* Note 1)	125	5 880	Triple Plain/ Triple Oxford
Tolerance		—	± 5 percent	± 1 mm	± 1 mm	± 1 mm	± 5 percent	± 1	± 1	± 5 percent	± 10 percent	—	—
Method of Test, Ref to		IS 1954					IS 1963			IS 1963	IS 1964	IS 1969 (Part 1)	Visual

NOTES

1 Count the picks on the face side of the webbing to the side having no slots.

2 The test specimen is prepared by pulling out all the core threads from the rolled edges.

3 1 N is approximately equal to 0.102 kgf.

Table 2 Other Requirements of Cotton Webbing, Rolled Edges/Slotted Back
(*Clause* 4.1)

Sl No.	Characteristic	Requirement(s)	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	*p*H Value	5.0 to 9.0	IS 1390
ii)	Moisture-Absorption, percent, *Max*	50	Annex B
iii)	Colour Fastness:		
	a) Light (Change of colour) b) Washing,	3 or better	IS/ISO 105-B02
	i) Change in colour ii) Staining of adjacent fabric	2 or better 2 or better	IS/ISO 105-C10

Table 3 Sample Size and Permissible Number of Defective Rolls
(*Clause* 7.1)

Sl No.	Lot Size	Sample Size	Permissible Number of Defective Rolls	Sub -Sample Size (to be drawn from sample)	Permissible Number of Defective Sub - Sample
(1)	(2)	(3)	(4)	(5)	(6)
i)	2 to 25	3	0	3	0
ii)	26 to 90	13	1	3	0
iii)	91 to 150	20	2	13	1
iv)	151 to 280	32	3	13	1
v)	281 to 500	50	5	20	1
vi)	501 to 1 200	80	7	32	2
vii)	1 201 and	125	10	50	3

NOTE — If sample size equals or exceeds lot size, carry out 100 percent inspection.

7.2 Criteria for Conformity:

Sl No.	*Characteristic*	*Number of Specimens*	*Criteria for Conformity*
(1)	(2)	(3)	(4)
i)	Dimensions ends and picks, weave	According to co1 (3) of Table 3	Defective rolls shall not exceed the number given in co1 (4) of Table 3
ii)	Manufacturing requirments, Breaking load, colour fastness, Mass, *p*H value and moisture absorption	According to co1 (5) of Table 3	Defective rolls shall not exceed the number given in co1 (6) of Table 3

ANNEX A
(*Clause* 2)
LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 1390 : 2022/ISO 3071 : 2020	Textiles Determination of *p*H of aqueous extract (*third revision*)
IS 1954 : 1990	Determination of length and width of woven fabrics — Methods (*second revision*)
IS 1964 : 2001	Textiles — Methods for determination of mass per unit length and mass per unit area of fabrics (*second revision*)
IS 1969 (Part 1) : 2018	Textiles — Tensile properties of fabrics: Part 1 Determination of maximum force and elongation at maximum force using the strip method (*fourth revision*)
IS/ISO 105-C10 : 2006	Textiles — Tests for colour fastness — Part C10 : Colour fastness to washing with soap or soap and soda
IS/ISO 105-B02 : 2014	Textiles — Tests for colour fastness — Part B02 : Colour fastness to artificial light: Xenon arc fading lamp test

ANNEX B
[*Table* 2, *Sl No.* (ii)]

METHOD FOR DETERMINATION OF WATER ABSORPTION OF WEBBING

B-l TEST SPECIMENS

B-l.1 For the purpose of this test, cut out pieces of webbings from all the test samples of the following dimensions:

a) Length 10 cm; and
b) Width Full width.

B-2 EQUIPMENT

B-2.1 An apparatus as illustrated in Fig. 1 consisting of the following:

a) A water tank (made of non-corrosive material) having a dimension of approximately 40 cm × 20 cm × 20 cm or any other suitable size;
b) A steel roller of approximately 7.5 cm diameter weighing about 18 kg;
c) A vulcanized rubber pad of approximately 30 cm × 30 cm × 1.5 cm;
d) Blotting paper having a thickness of 0.2 mm to 0.25 mm and a weight of 120 g/m^2 to 150 g/m^2. The blotting paper shall be capable of absorbing 0.3 ml of water in 30 seconds;
e) A metallic sinker, preferably a rod, of approximately 1 cm diameter and 35 cm length; and
f) Wire hooks.

B-3 PROCEDURE

B-3.1 Rig up the equipment as illustrated in Fig. 1. Take 5 test specimens previously conditioned in an atmosphere of (65 ± 2) percent relative humidity and (27 ± 2) °C temperature for a period of 48 h. Weigh these test specimens together to the nearest 10 mg. This weight shall be W_1.

B-3.2 Attach a wire hook to one end of each specimen and a length of thread to the other end as illustrated in Fig. 1. Keep the specimen immersed in the distilled water contained in the tank for 30 min at (27 ± 2) °C after attaching the metallic sinker to the hooks so that the specimens remain immersed in a vertical position as shown in Fig. 1. The ends of threads attached to the other ends of the specimen are passed over a suitable rod placed over the tank in order to keep the specimens steady in the vertical position during the period of immersion. The water in the tank shall be sufficient so as to keep the top edges of the specimens about 5 cm below the water level. At the expiry of 30 min, remove all the 5 specimens and after detaching the hooks and the threads, invert them by 180° so that the top edge becomes the bottom edge. Each edge of the specimen is then held in contact with the surface of a tray for about 10 sec to drain off any adhering water. Take one test specimen and enclose it between two layers of blotting papers on each side. The size of the blotting paper pieces shall be such that they extend about 2 cm beyond each edge of the specimen. Place the specimen enclosed by blotting papers on the rubber pad and roll over it a steel roller without exerting any additional pressure beyond the weight of the roller, the roller being rolled once with its length parallel to the long side of the specimen. Remove the pieces of blotting papers from the test specimen and put it in between a set of fresh blotting papers as before and roll it over with the roller as before. Remove the test piece from the blotting paper pieces and place it in a beaker (without spout) covered with a lid.

B-3.3 Repeat the process on all the remaining specimens. Remove the test specimens from the beaker and weigh them collectively to the nearest 10 mg and this weight shall be W_2.

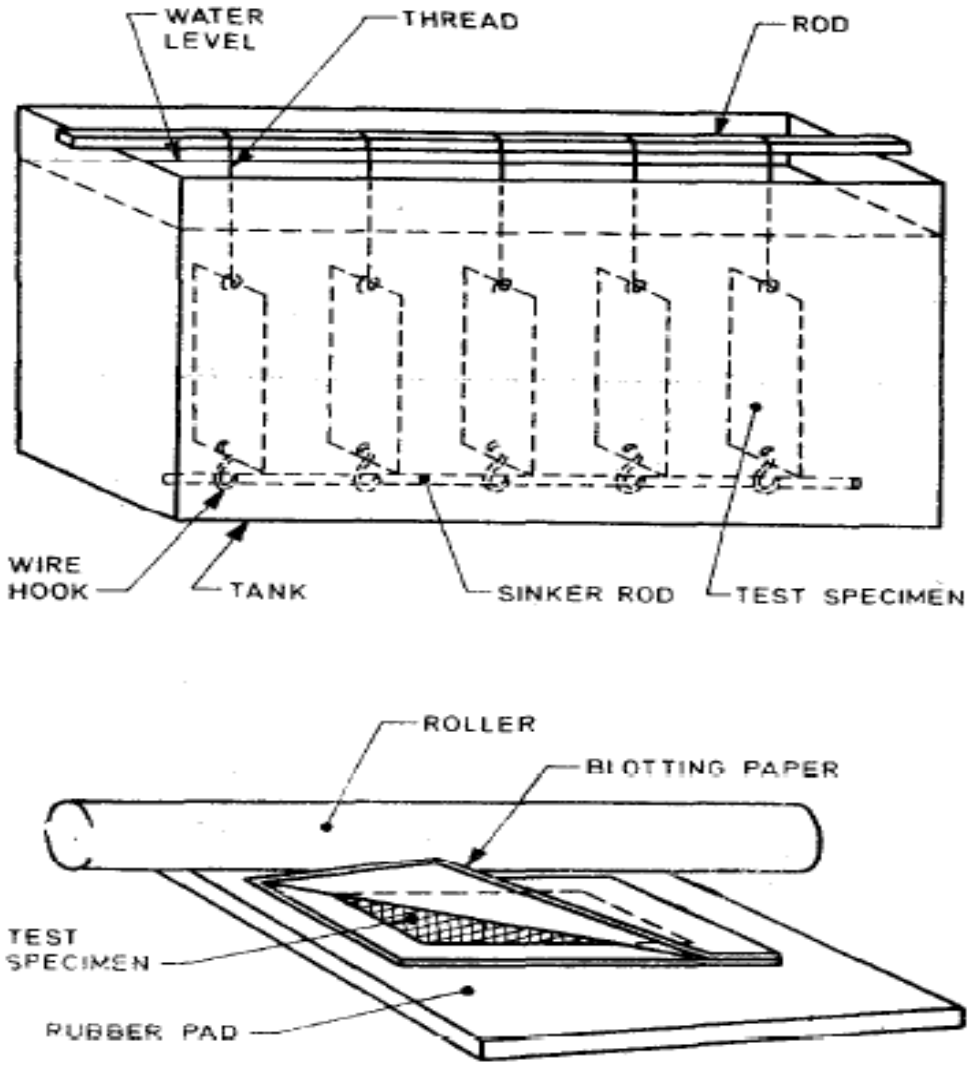

FIG. 1 EQUIPMENTS OR TESTING MOISTURE ABSORPTION

B-4 CALCULATION

B-4.1 The difference between W_1 and W_2 is the amount of water absorbed by the specimen and is expressed as percentage of the original weight of the specimens:

$$\text{Percentage absorption} = \frac{(W_2 - W_1)}{W_1} \times 100$$

ANNEX C

(*Foreword*)

COMMITTEE COMPOSITION

Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee, TXD 39

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